[0021] The rocker arm 40 of the valve actuation linkage mechanism 300 shown in Figure 3 retains substantially the same function and physical configuration as existing prior art rocker arms 40 (shown in Figure 1). The rocker arm 40 will cooperate with the pivot rod 320 in the valve actuation linkage mechanism 300 to actuate the valve bridge 310. The novel pivot foot preferably comprises a pivot rod head 329, a pivot rod neck 327, and a pivot rod body 325 with a pivot rod bottom 425 (shown in Figure 4). The pivot rod head 329 preferably has a curved shape in the form of a "mushroom" head. In this manner, the pivot rod head 329 will complimentarily cooperate with a pivot rod cup 350 in the rocker arm 40. The complimentary shapes of the curved pivot rod head 329 and the pivot rod cup 350 allow for easier motion between the two [part] **parts** and tend to reduce wear between them as the valve actuation linkage mechanism 300 operates.

[0022] Figure 3 also illustrates a novel valve bridge 310 that will act simultaneously on a pair of intake or exhaust valves (not shown). The valve bridge in this embodiment, the valve bridge 310 preferably comprises a pivot rod chamber 315, a pair of fastener bores 314, valve stem chambers 405 (shown in Figure 4), a bottom valve bridge section 312 and a middle valve bridge section 316. The pivot rod chamber 315 is preferably configured to be a hollow cylindrical void or chamber with a complimentary pivot rod body 325 configuration that allows insertion of the pivot rod 320. Significantly, the configuration of the pivot rod bottom 425 and corresponding pivot rod chamber bottom 415 (shown in Figure 4) in the valve bridge 310 will eliminate the flat surface rubbing contact 15 present in prior designs thereby substantially reducing friction wear between linkage mechanism 300 components, particularly between the pivot foot bottom 25 and the valve bridge contact surface area 15 (shown in Figure 1). Additionally, the pivot rod chamber 315 is preferably configured such that there is a divot or dimple 417 (shown in Figure 4) at the pivot chamber bottom 415. The pivot or dimple 417 will preferably hold engine oil or some other lubricant to provide lubrication between the pivot rod 320 and the valve bridge 310. In particular, lubrication between the pivot rod bottom 425 and the pivot chamber bottom 415 (shown in Figure 4), thereby substantially reducing friction wear between the pivot rod 320 and the valve bridge 310.

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[0035] Figure 7 shows a pivot rod chamber movement area 715 that allows the pivot rod to move back and forth inside the pivot rod chamber 315 to compensate for the arc motion of the rocker arm 40 (shown in Figure 3) during engine operation. In this manner the vertical motion of the rocker arm 40 can be translated to the [to the] valve bridge 310 during engine operation. There is also shown the complimentary round nature of the pivot rod bottom 425 and the pivot rod chamber bottom 415. The complimentary configurations of the pivot rod bottom 425 and the corresponding pivot rod chamber bottom 415 eliminate the flat surface rubbing contact 15 present in prior designs such as shown in Figure 1. Instead of the flat surface contact area 15 (shown in Figure 1), the complimentary curved surfaces of the pivot rod bottom 425 and the corresponding pivot rod chamber bottom 415 result in a contact line or contact line area 725 between both components. The resultant contact line area 725 is smaller than the flat surface rubbing contact 15 shown in Figure 1 and thus substantially reduces friction wear between the pivot rod 320 and the valve bridge 310. Additionally, the pivot rod chamber 315 has a divot or dimple 417 at the pivot rod chamber bottom 415 which will hold engine oil or some other lubricant to provide lubrication between the pivot rod 320 and the valve bridge 310. The lubrication between the pivot rod bottom 425 and the pivot chamber bottom 415 further reduces friction wear between the pivot rod 320 and the valve bridge 310.

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